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ABSTRACT

There are a number of views of the relationship between language and thinking. Two prominent figures in developmental psychology, Jean Piaget and Lev Vygotsky, proposed theories of language and thinking which also involve the notion of "communication." For Piaget, thinking develops first, and language comes along as an expression of thought. For Vygotsky, language and thinking are initially separate but come to have mutual effects on one another. Vygotsky's perspective is the most effective at linking language and thinking with communication. Language is seen as first a means of communicating with others, and later as an aid to thinking, which becomes more powerful as "inner speech" than it was earlier. (An appendix contains two transcripts of mother-child puzzle solving interactions.) (SR)

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Language, thinking, and communication: A developmental psycholinguistic perspective

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Language, thinking, and communication: A developmental psycholinguistic perspective

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There are a number of views of the relationship between language and thinking. In fact, just about any relationship that it is possible to postulate has been suggested at one time or another. Some examples:

- Language affects thinking:
  - In a universal way: Thinking is nothing more than "subvocalic speech" (early behaviorists).
  - In culturally specific ways: Particular languages shape thinking in particular ways (Whorf).
- Thinking develops first, and language comes along as an expression of thought (Piaget).
- Language and thinking are initially separate, but come to have mutual effects on one another (Vygotsky).

I will not discuss the "language-first" hypotheses, as these cannot be accepted in their strong forms -- language may certainly influence thought, but clearly thinking must be thought of as independent of language to at least some degree to at least some point in development. I will concentrate on the "thinking-first" and "independent" hypotheses, as proposed by two giants of developmental psychology, Jean Piaget and Lev Vygotsky. Unlike many other theories of language and thinking, both of these hypotheses involve the third term of our topic, "communication."

Piaget. For Piaget, cognition precedes language. The child develops concepts, and later acquires the words that express those concepts. The ability to use words is dependent upon the ability to represent reality internally -- a cognitive ability. Thus thinking is in no way carried out through language. Rather, it is merely a way to communicate ideas to others.

True communication, in fact, is also a later development than basic cognitive abilities. To understand Piaget's view of language, thinking, and communication, it is necessary to consider his view of human nature, particularly child nature. Piaget viewed children as completely asocial at birth (he used the term "autistic"). They then go through a stage of "egocentrism" before eventually becoming socialized. The stage of egocentrism is characterized by "egocentric speech," which according to Piaget is speech that fails to take the listener's needs into account. Thus the child is not able to communicate in any real sense until s/he has developed the (cognitive) ability to understand others' perspectives.

Vygotsky. Human nature was viewed quite differently by Vygotsky than by Piaget. For Vygotsky, children do not have to become social. They are always social (though they do have to become *socialized* -- they must learn the social rules of their particular society). Children are born into a social world, in which they are constantly

interacting with others. They are always aware of others. Early speech is social in nature. (This claim has been well supported by modern studies of language development: even before first words, children use sounds to interact with others; early language functions are primarily social-interactional rather than referential; etc.)

Vygotsky's different view of human nature resulted in a different hypothesis about language, thinking and communication. Vygotsky suggested that language and thinking have independent origins. That is, we can identify a period of 'pre-verbal thinking' and 'pre-intellectual' speech in which thinking and speaking are carried out separately. Piaget's 'sensori-motor period' would serve as a description of Vygotsky's 'pre-verbal thinking.' By 'pre-intellectual speech,' Vygotsky was referring to speech's communicative function: at this point in development, the child's functions of speech include only communicative and interactive ones, as opposed to the use of language for problem-solving.

At some point in development, speech and thinking "come together" -- language begins to be used for thinking. Each becomes more powerful as a result. Language may now be used as a "psychological tool" for thinking.

Vygotsky contrasted his view of the relation between language and thinking with Piaget by comparing their views of the phenomenon of "egocentric speech." Piaget had originally observed the phenomenon in a Montessori classroom, where children engaged in "collective monologues": each child would be talking about his own activity, neither listening nor responding to other children talking about theirs. He claimed that children in these situations are not trying to communicate, and do not care whether anyone is listening. Piaget claimed that a very high proportion of children's speech is egocentric, even in other situations when the child may be attempting to communicate.

Vygotsky convincingly argued that "egocentric" speech represents a transitional phase between social speech and "inner speech" (or verbal thought). During the egocentric speech period, social speech is differentiating into two functions: a continuation of social speech, and a new function, that of "psychological tool" to aid thinking. When children are exhibiting "egocentric" speech, they are still confusing these 2 functions of speech -- when they use speech for their private activities, they use it as though they are trying to communicate. As "egocentric speech" evolves into inner speech, it becomes more and more unintelligible as it loses its social aspect.

Perhaps the most intriguing part of Vygotsky's view of the relationship of language to thinking is how speech comes to be used for thinking. The linking of speech and thought comes about through interaction with others: as the child and the adult interact in some activity, the adult uses language to guide the child's activity. For example, a child trying to remember where he left his gloves might be asked a series of questions by the adult that helps him to remember where he saw them last. This constitutes a joint problem-solving activity involving both members: the adult and child may be said to be "remembering together." In the same way, we can speak of adults and children "attending together," and even "thinking together": adult and child

are carrying out activities together, and through such interaction, the child will eventually be able to carry out the activity independently. The types of assistance provided by the adult in joint problem-solving will be internalized by the child to aid in independent cognitive tasks.

In recent years, researchers in children's development have rediscovered Vygotsky (who died in 1934) and have extended his theory and carried out new and more extensive research. They have observed adults and children interacting in a variety of activities: puzzle assembly, counting, and "everyday" activities such as putting away groceries. The transcript on the handout is from a study of mothers and children working on a puzzle task together. The dyads were asked to match the colors of the puzzle to a "model" puzzle. For the children in our study (age 2 to 4), while puzzle assembly was a very familiar task, the goal of matching a model was unknown. In the transcript examples, the mothers may be observed helping the children with the matching aspect of the task, with different degrees of success.

In conclusion: There are other views of the relation of language and thinking, but Vygotsky's perspective is the most effective at linking them with communication. Language as seen as first a means of communicating with others, and later an aid to thinking, which becomes more powerful as "inner speech" than it was earlier.

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Mother-Child Interaction -- 2 1/2 year old -- Truck Puzzle

1. M: Now where does the next one go?
2. C: Oh. (child looks at the model puzzle, then at the pile of pieces.) Oh, now where does this one go? (child looks at the copy puzzle, and then at the pieces pile)
3. M: Where does it go on this other one? (child puts the black piece which she is holding back down in the pieces pile, and looks at the pieces pile)
4. M: Look at the other truck and then you can tell. (child looks at the model puzzle, glances at the pieces pile, looks at the model puzzle, and glances at the pieces pile.)
5. C: Well ... (child looks at the copy puzzle, then at the model puzzle) I look at it. Um, this other puzzle has a black one over there. (child points to the black piece in the model puzzle.)

[later]

6. C: (glances at the pieces pile; looks at the copy puzzle; picks up the orange piece from the pieces pile.) Now where do you think the orange one goes?
7. M: Where does it go on the other truck? (child looks at the model puzzle.)
8. C: Right there. (C points to the orange piece in the model puzzle) The orange one goes right there. (child places orange piece correctly in copy)

[later]

9. C: (looks at pieces pile; picks up the yellow piece; looks at the copy puzzle.) Now how ... now where ... Now (looks at the model puzzle.) You ... you ... the yellow on that side goes ... one yellow one's right next there. (points to the yellow piece in the model puzzle; looks at the yellow piece she is holding in her hand.)
10. M: Okay.

[In 1, M begins with an "abbreviated" directive (one that assumes understanding of the model within the task); she later switches to "unabbreviated" directives (#3, #4, #7), which are effective in helping the child. By #9, the child (after beginning to ask M for information) herself looks at the model for information about piece placement.
Mothers typically started out with abbreviated directives, even when their children could not make use of them. It appears that by hearing both abbreviated and unabbreviated directives, children eventually learn how the overall task is related to the subtasks of choosing pieces, deciding where they go, etc.]

Mother-Child interaction – 4-1/2-year-old – Truck puzzle (Wertsch et al.)

[Child puts the black piece in the correct place without looking at the model; probably accidental since he started doing this before the instructions to match the model had been given]

1. C: Where ... (whispers) help me. Do you put this (puts the orange piece in the wrong place in the copy) up (looks at the model) here or something? (removes the orange piece)
2. M: Well, I don't know. Let's see. You put this (points to a piece in the model) black one in. Now what do you think you should put next to it?
3. C: (looks at the copy; looks at the model) Oh, white. (looks at the pieces pile; puts the orange piece in the pile)
4. M: Okay.
5. C: (picks up white piece; puts it in the correct place in the copy; looks at the model; adjusts the white piece)

[later]

6. M: Now (child looks at the model) what's left?
7. C: Now you (picks up an orange piece) put the orange one (looks at the copy) under the black one. (inserts the orange piece correctly)
8. M: Ah yeah. See that looks better than ... That works out better that way I think.
9. C: The orange square ... there ... (adjusts orange piece) It's kind of squooshy.
10. M: Yeah.

part 2 (mother and child are asked to put the cargo pieces in one more time, again matching the model puzzle)

11. C: A square and then (looks at the pieces pile; picks up a blue piece; looks at the model; looks at the copy; looks at the model) it's kind of squooshy (looks at the copy) but ... (looks at the model) I need a little (looks to the copy; inserts the blue piece) one like this one ... (looks at the pieces pile) the next (looks at the model) ... next is ... will be (picks up a yellow piece) yellow. (M: Okay) [...] Next (looks at the pieces pile; picks up a black piece) is the black. (looks at the model) The black one's up here (looks at the copy) ... Next (inserts black piece) a white. (looks at pieces pile) Where's (picks up white piece) a white? in the middle (inserts white piece) of the puzzle? (looks at the model) Next we need ... (looks at the copy) um ... (looks at the pieces) purp... (looks at the pieces; looks at the model) purple. (picks up a purple piece; inserts piece) There.

[This child needed minimal assistance to get the idea of matching the model puzzle. At the end he may be observed to use "private speech" to regulate his own behavior, similar to the way his mother had regulated it earlier.]